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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,616	10/06/2003	Bernardo Donoso	AMAT/8260/CMP/ECP/RKK	5563
44257	7590	09/07/2005	EXAMINER	
MOSER, PATTERSON & SHERIDAN, LLP APPLIED MATERIALS, INC. 3040 POST OAK BOULEVARD, SUITE 1500 HOUSTON, TX 77056			HUSBAND, SARAH E	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/680,616	DONOSO ET AL.	
	Examiner	Art Unit	
	Sarah E. Husband	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 33-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/21/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restriction

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I: Claims 1-32, drawn to an apparatus having a cell body; rotatable substrate support member; a rotatable flywheel; a fixed central hub member; and at least one fluid dispensing nozzle, classified in Class 134, subclass apparatus.

Group II: Claims 33-40, drawn to a method for rinsing and drying a substrate, classified in Class 134, subclass 33.

Group III: Claims 41-43, drawn to an apparatus having a rotatable flywheel assembly; a horizontal shield; a vertical shield member; classified in Class 134, subclass apparatus.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (M.P.E.P. § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus such as without a flywheel or the apparatus as claimed can be used to practice another and materially different process such as coating a substrate.

Inventions (I and II) and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In

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the instant case the different inventions Group III, claims 41-43 do not require nozzles for dispensing fluid and Groups (I and II) do not require horizontal and vertical shields.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, have acquired a separate status in the art because of their recognized divergent subject matter, the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Barden Patterson on July 15, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-32. Affirmation of this election must be made by applicant in replying to this Office action. Claims 33-43 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the response to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 311 (Fig. 3B and 3C). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 794 (paragraph 43) and 810 (paragraph 72). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because the precise manner in which the rotatable flywheel and fixed central hub interact cannot be clearly determined from the drawings. In explanation of this observation, the applicant is asked to consider Figures 3A-C. In these

Figures, the central portion (hub) is stationary and includes items such as 308, 310 and 320 and there is the rotating flywheel (Item 302). However, it is unclear as to which exact parts are being rotated by the driving mechanism (which is not shown). Is the only rotating member the flywheel or are some of the shields attached to the rotating mechanism and where is the rotation mechanism connected to the flywheel? Further, when regarding Figure 8, it looks as if there is no stationary portion. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: pages 17-18 describe Item 504 as “upper surface” and “dispensing purge ports”; paragraph 64 and paragraph 69 refer to a “hub 630” where elsewhere it is referred to as “hub 730”; in paragraph 32, loading stations are described by 134, and previously 134 described the cassettes; and paragraph 73 describes “hub 830” but appears to be 832 in the drawings.

Appropriate correction or clarification is required.

Claim Objections

Claim 14 is objected to because of the following informalities: “sending” is written instead of “sensing”. Claim 8 is objected to because of the following informalities: “rotatably fixed” is a contradictory statement. Claim 27 is objected to because of the following informalities: “are float”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindner (US Patent Application Publication 20020002991 A1).

Lindner discloses a substrate treating apparatus having an inner process region (Fig. 4, Item 17), a rotatable substrate support member having a rotatable flywheel (Fig. 2, Item 17), a stationary tubular body (fixed central hub member) (Fig. 2, Item 8) having a plurality of gripping elements (engaging members) (Fig. 2, Item 19), and the central member having a

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plurality of fluid supplying lines (nozzles) with one as a gas dispensing nozzle (Fig. 2, Items 22, 24 and 26) and at least one frontside fluid dispensing nozzle (Fig. 4, Item 28; paragraphs 34-40; paragraph 47). Lindner also discloses the central tubular body is fixed with respect to the rotatable substrate support member. Lindner further discloses there can be a waveguide (substrate sensing assembly) to indicate whether a wafer is in place (paragraph 15) which is positioned outside the cell body because it extends into the bottom portion (Fig. 4, Item 36).

Claims 16, 17, 21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Taatjes (US Patent No. 6,167,893).

Taatjes discloses a substrate treatment apparatus having a rotatable chuck (flywheel) having a plurality of clamping arms (substrate engaging finger assemblies) each having an outer pivotally mounted substrate engaging member (Fig. 1, Item 112) and an inner fixed member (Fig. 1, Item 16; col. 2, ll. 26-60) and at least one nozzle directing fluid to the top surface and at least one nozzle directing fluid to the bottom surface (Fig. 3, Items 32 and 34; col. 4, ll. 1-11). Taatjes also discloses that at least one nozzle dispenses a drying gas onto the top surface (col. 4, ll. 2-4). Taatjes further discloses the outer engaging member is pivotally actuatable (Fig. 1, Item 114 and 120; col. 2, ll. 40-50). Taatjes discloses a post having a substantially horizontal surface and an angled centering surface (Fig. 1; col. 2, ll. 49-57) and the fixed engaging member is inside of the pivoting member (Fig. 1 and 2A, Items 116 and 112).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 5, 7, 16 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner in view of Taatjes (US Patent No. 6,167,893).

Lindner discloses the substrate treating apparatus shown above in the 102(b) rejection. Lindner does not disclose engaging fingers being pivotally mounted. Taatjes discloses that the engaging fingers are pivotally mounted and each also has a fixed support pin (support post member) (Fig. 1, Items 112 and 110). Taatjes also discloses a horizontally positioned wafer holding notch having an angled surface to guide the substrate (Fig. 1, Item 117A) and the engaging member is positioned between an open position and closed position shown in Figure 1 with the arrows (Item 120; col. 2, ll. 26-67).

Lindner and Taatjes are analogous art because they are from the same field of endeavor, wafer treatment apparatus. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Lindner with Taatjes for the benefit of holding the wafer securely (col. 1).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner and Taatjes as applied to claims 1 and 2 above, and further in view of Kuroda (US Patent No. 6,811,618).

Lindner and Taatjes disclose the substrate treatment apparatus shown above in the 103(a) rejection. They do not disclose specifically an engaging finger member having a rounded leading edge with a first thickness and a tapering trailing edge having a second thickness less than the first thickness. Kuroda discloses the shape of the engaging fingers being curved and also tapering in thickness (Fig. 8, Item 110 and 112; col. 10, ll. 46-51). Lindner, Taatjes and Kuroda are analogous art because they are from the same field of endeavor, wafer treatment apparatus. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Lindner and Taatjes with Kuroda for the benefit of reducing air resistance when rotating the wafer (col. 10, ll. 48-50).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner and Taatjes as applied to claims 1 and 2 above, and further in view of Maekawa (US Patent No. 5,775,000).

Lindner and Taatjes disclose the apparatus shown above in the first 103(a) rejection. They do not disclose the engaging fingers pivotally actuated by the vertical movement of a shield. Maekawa discloses the engaging fingers pivotally actuated by the vertical movement of a cup (shield) (Fig. 3, 5; col. 4). Lindner, Taatjes and Maekawa are analogous art because they are from the same field of endeavor, wafer treatment apparatus. At the time of the invention, it would have been obvious to modify Lindner and Taatjes with Maekawa for the benefit of better controlling the wafer placement and supporting mechanism.

Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US Patent No. 4,518,678).

Lindner discloses the substrate treating apparatus shown above in the 102(b) rejection. Lindner does not disclose a circulation breaker member attached to the central hub member. Allen discloses a raised baffle (circulation breaker) to prevent chemical backstreaming (Fig. 4, Item 35; col. 3, ll. 13-16). Although Allen does not show a plurality of the baffles, the Courts have ruled that the duplication of parts is obvious, *St. Regis Paper Co. v. Beemis Co., Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). The baffle is placed on the support member, is shaped with a tapered leading edge and minimizes the formation of low pressure toward the center, preventing chemical backstreaming.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner in view of Oriti (US Patent No. 6,863,741).

Lindner discloses the apparatus as shown above in the 102(b) rejection. Lindner does not disclose a light emitter and light detector or its position. Oriti discloses a wafer inspecting section having an optical sensor containing a light emitting and light receiving (detecting) element in the wafer path (parallel to the wafer position), which can sense whether a wafer is present or whether it is held normally. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the wafer treatment apparatus shown by Lindner with an optical sensor having light emitters and detectors shown by Oriti for the benefit of not only detecting the wafer's presence but also sensing if the wafer was held normally (col. 5, ll. 10-20; Fig. 3, Items 31 and 32).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taatjes in view of Kuroda.

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Taatjes discloses the wafer treating apparatus shown above in the 102(b) rejection. Taatjes also discloses an engaging notch at the upper and inside end of the engaging assembly (Fig. 1, Item 117). Taatjes does not disclose specifically an engaging finger member having a rounded leading edge with a diameter and a tapering trailing edge having a second diameter less than the first thickness. Kuroda discloses the shape of the engaging fingers being curved and also tapering in thickness (Fig. 8, Item 110 and 112; col. 10, ll. 46-51). Taatjes and Kuroda are analogous art because they are from the same field of endeavor, wafer treatment apparatus. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Lindner and Taatjes with Kuroda for the benefit of reducing air resistance when rotating the wafer (col. 10, ll. 48-50).

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taatjes in view of Maekawa.

Taatjes discloses the apparatus shown above in the first 102(b) rejection. Taatjes does not disclose the engaging fingers pivotally actuated by the vertical movement of a shield. Maekawa discloses the engaging fingers pivotally actuated by the vertical movement of a cup (basin shield) (Fig. 3, 5; col. 4). Taatjes and Maekawa are analogous art because they are from the same field of endeavor, wafer treatment apparatus. At the time of the invention, it would have been obvious to modify Lindner and Taatjes with Maekawa for the benefit of better controlling the wafer placement and supporting mechanism.

Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner and Taatjes as applied to claim 16 above, and further in view of Allen.

Lindner and Taatjes disclose the wafer treatment apparatus shown above in the previous 103(a) rejection. They do not disclose circulation breakers. Allen discloses a raised baffle (circulation breaker) to prevent chemical backstreaming (Fig. 4, Item 35; col. 3, ll. 13-16). Although Allen does not show a plurality of the baffles, the Courts have ruled that the duplication of parts is obvious, *St. Regis Paper Co. v. Beemis Co., Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). The baffle is placed on the support member and extends outward and upward toward the substrate as can be seen in Figure 4. Although Allen doesn't specifically disclose the baffle floating above the rotating flywheel, when combining Allen's baffles with Lindner's fixed and stationary portions of a rotation mechanism, one of ordinary skill in the art would realize that in order to reduce the backflow of liquid, the baffles must be attached to the stationary portion in order to accomplish this task. Taatjes further discloses the chuck can be made of a plastic material and therefore, it would be within the level of one of ordinary skill in the art to modify the plastic chuck shown by Taatjes with plastic baffles for the benefit of preventing chemical backstreaming and having an apparatus made of one continuous material. Therefore, it would have been obvious to one of ordinary skill in the art to modify the structure shown by Lindner and Taatjes with the baffles for the benefit of more effectively cleaning a wafer.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner and Taatjes in view of Orii (US Patent No. 6,863,741).

Lindner and Taatjes disclose the apparatus as shown above in the 103(a) rejection. Lindner and Taatjes do not disclose a light emitter and light detector or its position. Orii

discloses a wafer inspecting section having an optical sensor containing a light emitting and light receiving (detecting) element in the wafer path (parallel to the wafer position), which can sense whether a wafer is present or whether it is held normally. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the wafer treatment apparatus shown by Lindner and Taatjes with an optical sensor having light emitters and detectors shown by Orii for the benefit of not only detecting the wafer's presence but also sensing if the wafer was held normally (col. 5, ll. 10-20; Fig. 3, Item 31).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not referred to are Smith (US 6,827,092) and Matusita (US 5,954,072), who teach pivoting wafer engagers.

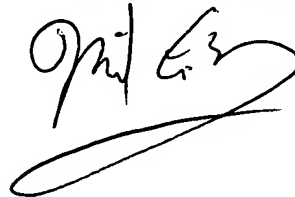
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah E. Husband whose telephone number is (571) 272-8387. The examiner can normally be reached on M-F 7:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael E. Barr can be reached at (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEH 9/1/05

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Michael Barr", with a large, sweeping underline.